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ABSTRACT

The major components of collegial interaction college and university faculty and of faculty in different disciplinary groupings were studied, and the way that these components differ among four-year college and university faculty were addressed. Faculty at a Ph.D.-granting university and two liberal arts colleges were studied. Pilot interviews were conducted with faculty members to identify specific individuals with which they had a meaningful professional relationship and to indicate the nature and development of each such relationship. Based on the interviews, a questionnaire was developed and pretested. The final questionnaire included 30 items representing research, teaching, professional, institution, and social functions that colleagues perform for each other. The results of factor analysis indicate nine functional components of colleagueship: general campus and off-campus collegial stimulation, support, and collaboration; collegial interaction centering around the informant/advisor role; interaction directly related to the teaching role; interaction related to sponsorship for academic positions and nomination for professional association and institutional activities and officers; interaction directly related to the research role; and social/personal friendship. Discriminant analysis indicated that the most powerful discriminator between subgroups was campus colleague stimulation and support. Liberal arts college faculty were significantly higher on general interaction with campus colleagues than were university faculty. Additional findings are considered. Factor matrix data, a list of 30 colleagueship functions, and a bibliography are appended. (SW)

The Dimensions of Collegeship Among College and University Faculty

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THE PROBLEM OF COLLEAGUESHIP

College and university professors spend a considerable portion of their professional lives interacting with colleagues - in their department, on their campuses, in their discipline and/or its subspecialties (off-campus). These collegial interactions take a variety of forms and serve a variety of functions. Some interactions center around the individual research function, and may range from casual stimulation from occasional critique of an idea to intensive collaboration on one or more projects. Faculty "mentoring" of graduate students would fall in this category. Still other interactions center more directly on departmental/institutional business (including faculty career advancement) and may range from didactic discussion of a particular student to full-time faculty promotion and course committee deliberations. Finally, such interactions may be "purely" social in nature, ranging from occasional companionship for coffee/lunch to regular Saturday night socializing.

These collegial interactions are enormously important to professors and their work. There is clear evidence that stimulating colleagues contribute to faculty research productivity (Blau, 1973; Behymer and Blackburn, 1975; Cole and Cole, 1973). If faculty motivation is primarily "intrinsic" (Behymer and Blackburn, 1975; Bess, 1978; Finkelstein, 1930), colleagues are the principal "triggers" that activate it (Blau, 1973). Moreover, colleagues are a primary source of faculty morale and satisfaction. The literature on faculty interinstitutional mobility consistently uncovers "competency" and "congeniality" of colleagues as critical factors in faculty recruitment and retention (Finkelstein, 1978).

Beyond their more specific contributions to academic work, a

professor's colleagues form the normative context ("faculty culture") that shapes his/her outlook, orientation and action. Goldblatt (1967) found that faculty members' support for the principles of academic freedom varied as they moved between institutions with differentially tolerant faculty cultures. And Cole and Adamsons (1967), in a study of the Columbia faculty during the student disturbances of the late 1960s, found that faculty decisions on whether to hold regular classes during the student strike were determined more by their department colleagues' views than by their own level of attitudinal support for the students. More generally, a professor's colleagues set the standards for academic work in his/her particular discipline and apply those standards to the judgment of the professor's work.

Finally, faculty members' colleagues invariably intrude into their social lives. Parsons and Platt (1968) found that faculty tended to draw the plurality of their social friends from the ranks of their colleagues. Faculty members tend to be relatively high consumers of "high culture" (Anderson, 1967; Wilson, 1979) and apparently tend to share these enthusiasms with their colleagues "after hours."

If the generalized impact of colleagues on the life and work of professors is clear, we know very little about how collegueship works -- its structures and dynamics in the worklife and development of the individual professor. Most of the knowledge we have is drawn from the sociology of science literature and focuses on interaction of university scientists with off-campus, disciplinary colleagues related to their research and scholarship (Crane, 1972; Hargens, 1975; Granovetter, 1977). Much less is known about (1) interaction with on-campus colleagues in research and other areas;

(2) interaction not directly related to research, what function does it serve? What forms does it take? How is it related to performance?) (3) colleagueship in the life and work of non-graduate university faculty (that 90 percent of the academic profession that publish little). (4) colleagueship in the life of humanities and professional faculty (non-scientists)

What little we know about colleagueship on campus is to be drawn from studies of faculty research productivity and career success (Lodahl and Gordon, 1972; Biglan, 1973; Blau, 1973; Cameron, 1978; Gluech and Jauch, 1975; Finkelstein, 1978; Baldwin, 1979). These suggest a distinct dearth of satisfying collegial interaction on-campus. Faculty appear to experience considerable intellectual isolation (Blau, 1973), get few ideas for research from their department colleagues (Glueck and Jauch, 1975), and lack "mentoring" relations with their graduate students for what collegial gratification (Blau, 1973) they do get. Moreover, the findings of Blackburn, Behymer and Hall (1978) suggest that colleagues play quite a different role in the worklife of college as opposed to university faculty.

This situation is of particular concern in view of the current plight of the professoriate: severely curtailed opportunities for interinstitutional mobility; decreased travel funds; tenured-in departments. Many faculty will have to depend increasingly on their current department and campus peers to provide gratifying collegial interaction. Moreover, institutions pressured to maximize the productivity of extant faculty resources, will need to look to processes such as colleagueship as means for promoting faculty vitality and self-renewal.

OBJECTIVES OF THE STUDY

In light of our current knowledge, this study sought to: (1) describe the major components of faculty interaction with department, campus, and off-campus disciplinary colleagues; (2) examine the similarities and differences in patterns of collegial interaction of college and university faculty and of faculty in different disciplinary groupings; and (3) examine the relationships between patterns of collegial interaction and indicators of role performance and productivity in their teaching and service as well as research roles.

The analysis reported here focuses on the first one and one-half of these objectives, i.e., the description of the major components of collegial interaction and how those components differ for four-year college versus university faculty.

RESEARCH PROCEDURES

The research was designed as a case study of faculty at a Ph.D. granting university and two liberal arts colleges.

Since the literature did not provide the basis for characterizing the functions (as opposed to the structure) of collegial interaction, a series of pilot interviews were conducted with a dozen full-time faculty (male and female, tenured and non-tenured, representing the major areas of knowledge). In those interviews, respondents were asked to: (1) name specific individuals within or outside of institution with whom they had a meaningful (professional) relationship and (2) describe the nature and development of each such relationship.

Based on the interviews, a pen and pencil questionnaire was developed and pretested. The final questionnaire included thirty items representing research, teaching, professional, institutional and social functions that colleagues perform for each other (the thirty items are

listed in Appendix I). Respondents were asked to: (1) indicate whether or not each of the thirty functions was currently being performed by three different groups of colleagues--members of their department, campus colleagues outside their department, and off-campus colleagues in their field; (2) rate the extent of their satisfaction with each colleague group's performance of each of the thirty functions (on the assumption that some functions were less important than others so that one might indeed be satisfied by one's colleagues non-performance of these); and (3) supply information on professional activities and accomplishments as well as demographic characteristics.

The questionnaire was mailed to a stratified (by department) random sample of 210 full-time faculty at a private research university (Carnegie Ph.D.-granting I) and 230 full-time faculty at two private liberal arts colleges (Carnegie liberal arts I and Carnegie liberal arts II) in the Rocky Mountain region. A month later, a follow-up letter together with a second copy of the questionnaire was mailed to non-respondents.

The data analysis for this paper focused on respondent indications of performance/non-performance of the thirty functions by each of their three colleague groups, yielding ninety dichotomous variables. It proceeded in three stages:

Stage 1: Factor Analysis. A matrix of phi coefficients was computed on the ninety dichotomous variables for the sample as a whole.[1] This matrix was submitted to a classical factor analysis with iteration (i.e. the main diagonal elements of the correlation matrix were replaced with communality estimates and an iteration procedure was employed for improving the

estimates of communality). The extracted factors were then rotated to a varimax solution (after several experiments with oblique and other orthogonal rotations .

State 2: Building Factor Scores. Factor scores for the individual cases on each factor in the final varimax solution with an eigenvalue greater than or equal to 1 were calculated on the basis of the factor score coefficient matrix (factor scores were computed as a weighted product of the non-missing data when up to one-quarter of the variables for a given case had missing data) and added to the file.

Stage 3: Discriminant Analysis. The factor scores were entered as independent variables into a stepwise discriminant analysis, with the liberal arts college and university faculty subsamples serving as the groups to be discriminated. Rao's V, a generalized distance measure, served as the criterion for inclusion. Variables were selected on the basis of which contributed to the largest increase in V when added to the previous variable, thus achieving the greatest overall separation between the liberal arts college and university faculty groups. With a sufficiently large number of cases, the change in V has a chi square distribution with one degree of freedom and was tested for statistical significance at an alpha level of .05.

RESULTS

Response Rate and Respondent Characteristics

One hundred and seven members of the university faculty sample returned the questionnaire for a response rate of 50.2 percent. Of these 107 responses, ninety-five were usable for the analysis, thus yielding an effective usable return rate of 44.6 percent. Tables 1 and 2 compare the distribution of the total university faculty sample with the distribution of respondents by discipline and rank.

TABLE 1

Distribution of Total University Sample and Respondents By Discipline

Discipline	Sample	Respondents
Humanities	50 (23.5)	19 (20.0)
Social Sciences	45 (21.1)	24 (25.3)
Natural Sciences	28 (13.1)	10 (10.5)
Professional	90 (42.3)	42 (44.2)
Total	213 (100.0)	95 (100.0)

TABLE 2

Distribution of Total University Sample and Respondents By Rank

Rank	Sample	Respondents
Instructor/Lecturer	6 (2.8)	4 (4.2)
Assistant Professor	61 (28.6)	25 (26.3)
Associate Professor	66 (31.0)	32 (33.7)
Full Professor	80 (37.6)	34 (35.8)
Total	213(100.0)	95 (100.0)

For the most part, there appears to be a close similarity in the total sample and respondent distributions, suggesting that no obvious respondent bias is operating.

Eighty-one members of the liberal arts college faculty sample returned the questionnaire for a much lower overall response rate of 35.2 percent (the response rate was about the same for both of the liberal arts colleges). Seventy-one of these responses proved usable in the analysis, for an effective usable response rate of 31 percent. It should be noted that in comparison with the university faculty sample, the liberal arts college faculty sample showed a much higher proportionate representation of faculty in the humanities (nearly one-half of the sample) and a much lower proportionate representation of faculty in the professional fields (about one-third that of the university faculty sample) and had a higher proportionate representation of faculty at the lower end of the rank continuum (nearly one-half were at the rank of assistant professor or below). Tables 3 and 4 compare the distribution of the total liberal arts college sample with the distribution of respondents by discipline and rank.

TABLE 3

Distribution of Total Liberal Arts College Sample and Respondents by Discipline

Discipline	Sample	Respondents
Humanities	108 (47.0)	28 (39.4)
Social Sciences	39 (17.0)	14 (19.7)
Natural Sciences	47 (20.4)	18 (25.4)
Professional	36 (15.6)	11 (15.5)
Total	230 (100.0)	71 (100.0)

TABLE 4

Distribution of Total Liberal Arts College Sample and Respondents by Rank

Rank	Sample	Respondents
Instructor/Lecturer	30 (13.0)	5 (7.0)
Assistant Professor	73 (31.7)	21 (29.6)
Associate Professor	62 (27.0)	23 (32.4)
Full Professor	65 (28.3)	22 (31.0)
Total	230 (100.0)	71(100.0)

Table 3 shows that the respondent group tended to underrepresent the humanities faculty and slightly overrepresent natural science faculty. Table 4 shows an underrepresentation of instructor/lecturers among respondents as well as a slight overrepresentation of associate professors. While the disparities are not large, it appears that some respondents bias is operating for the liberal arts college faculty. Together with the low overall response rate, it suggests that some caution need be exercised in geralizing from the findings.

Results of the Factor Analysis

Table 5 (v. p. 17) displays the results of the factor analysis. For each of the sixteen factors with eigenvalues greater than or equal to 1, loadings are reported for each function for each colleague group, beginning with department colleagues. Eigenvalues as well as the proportinate variance accounted for by each factor are also reported.

The first three factors, together accounting for half the variance in the correlation matrix, are general factors defined principally by colleague location:

> Factor 1, which I have labeled off-campus colleague stimulation, support, and collaboration, appears to be a general off-campus colleague factor, loading especially high on functions 1-2,

4-8, 10, 16-18, 22, 24, 27-28, 30--general intellectual stimulation, research related interaction, information sharing on job opportunities and new developments in ones field, the advisor/supporter role, and collaboration in research--for off-campus colleagues only. There is no loading higher than .20 for either department or campus colleagues on this factor.

Factor 2, which I have labeled campus colleague stimulation and support, is a general campus colleague factor, loading especially high on functions 11-14, 16, 19, 21, 23, 25, 28-29--general intellectual stimulation, interaction related to teaching, social companionship, advice, information sharing, and general support--for campus colleagues only. There is no loading higher than .30 for department colleagues and .16 for off-campus colleagues on this factor. In contrast to the general off-campus colleague factor, this factor shows no high loadings on research-related functions.

Factor 3, which I have labeled department colleague stimulation and support, is a general department colleague factor. While, like the other general factors, it includes high loadings on the general functions of intellectual stimulation, information sharing, advising, and general support, it includes particularly high loadings on several research-related functions and no high loadings on any teaching-related functions. There are no loadings higher than .30 for campus colleagues and .17 for off-campus colleagues on this factor.

The remaining thirteen factors together account for about 40 percent of the covariance among the thirty colleagueship functions. By and large,

they are location and function specific, i.e., typically, they are concerned with a few items related to an overarching function (e.g. teaching, research, career, professional activities) for one or two, but not all three, colleague groups. For didactic purposes, the thirteen factors can be grouped into five or six clusters by function (keeping in mind, their colleague location specific nature). Factors 4 and 6, together accounting for about 10 percent of the variance, include high loadings on information sharing and advising functions. The first of these is primarily a department colleague factor, which involves providing information on departmental and institutional concerns (Functions 20, 21, 25) as well as advising on institutional and professional career issues (Functions 23 and 24). The second is primarily an off-campus and campus colleague factor, involving the colleague as informant, advisor, and protector of the focal individuals best interests.

Factors 5, 8, and 11, accounting for about 10 percent of the variance, are concerned explicitly with collegial interaction related to the teaching function. Factor 5 involves off-campus colleague help in course development, organization, and ideas for reading assignments--a species of disciplinary support for teaching). Factor 8 focuses primarily on department colleague assistance in new course development, particularly in the areas of teaching approaches and techniques (Funtions 12 and 13). Factor 11 focuses on co-teaching and cooperative course development primarily with department, but to some extent also with off-campus, colleagues.

Factors 7, 12, 15 and 16, together accounting for about 10 percent of the variance, involve the sponsorship dimension of collegial interaction. Factors 7 and 12 are explicitly concerned with sponsorship for academic positions (Factor 7) and information sharing/discussion of

prospective job opportunities (Factor 12). Factors 15 and 16 are concerned, respectively, with nomination for professional association activities and offices, and for institutional activities, committees, and offices (both involving primarily department and campus colleagues).

Factors 9, 13, and 14, together accounting for about 7 percent of the variance, are concerned with research-related collegial interactions. Factor 9 involves consultative relationships with campus colleagues on specific problems encountered in the pursuit of research (Function 10). Factor 13 involves collaborative relationships with department and campus colleagues in research and publication (Functions 2 and 30), while Factor 14 involves the use of campus colleagues as resources for generating/testing research ideas and providing linkages to the research literature and other scholars (Functions 4 and 6).

The final factor, Factor 10, which accounts for less than 3 percent of the variance, is concerned with collegial relationships of personal friendship and support, primarily on the part of off-campus colleagues.

In sum, the results of the factor analysis highlight nine functional components of colleagueship:

1. General off-campus colleague stimulation, support, and collaboration (accounting for nearly one-quarter of the variance;
2. General campus colleague stimulation and support (accounting for about one-seventh of the variance);
3. General department colleague stimulation and support, especially in research (accounting for about 10 percent of the variance);
4. Collegial interaction centering around the informant/advisor role (accounting for about 10 percent of the

variance);

5. Interaction directly related to the teaching role (accounting for about 10 percent of the variance);
6. Interaction related to sponsorship for academic positions and nomination for professional association and institutional activities and offices (accounting for about 10 percent of the variance);
7. Interaction directly related to the research role (accounting for about 7 percent of the variance, beyond that included in general Factors 1 and 3);
8. Social/personal friendship (accounting for about 3 percent of the variance).

Results of the Discriminant Analysis

Having identified the functional dimensions of colleagueship, to what extent, and in what ways, do college and university faculty differ in their functional colleagueship patterns?

Results of the stepwise discriminant analysis are displayed in Tables 6 and 7 (v. p. 23). Table 6 shows that fully half of the sixteen colleagueship components have significant discriminatory power. Table 7 shows that the canonical correlation of the discriminant function is 0.73. The canonical correlation is a measure of association between the discriminant function and the set of dummy variables which define membership/non-membership in the university and liberal arts college subgroups, respectively. Its magnitude here means that scores on the colleagueship components (factors) have considerable power in differentiating between university and liberal arts college faculty.

The standardized canonical discriminant function coefficients in Table 7 represent the relative contribution of the colleagueship components (Factor scores) to the discriminant function. Their interpretation is analogous to the interpretation of beta weights in multiple regression analysis.

As can be seen from Table 7, Factor 2 (campus colleague stimulation and support) is by far the most powerful discrimination between subgroups: Liberal arts college faculty are significantly higher on general interaction with campus colleagues than are university faculty (v. Table 8, p 24). A second group of colleagueship components (Factors) discriminate about half as powerfully between college and university faculty: Factor 8 (department and campus colleague help in teaching); Factor 12 (information sharing and advising re: job opportunities); Factor 1 (general off-campus colleague factor). From Table 8, we see that liberal arts college faculty are higher on teaching-related interaction with department and campus colleagues, and lower than university faculty on general interaction with off-campus colleagues and on collegial interaction related to the academic marketplace.

Yet a third group of colleagueship components discriminate about half again as powerfully as the second set between college and university faculty: Factor 13 (campus and department colleague collaboration in research and publication); Factor 7 (campus and department colleague sponsorship for academic positions); Factor 3 (the general department colleague factor, with especially high loadings on research-related functions); and Factor 6 (off-campus and campus colleague informant/advisor roles). From Table 8, we see that liberal arts college faculty are lower in research collaboration/co-publishing, lower in general department colleague interaction (especially around the research function), lower in the off-campus and campus colleague information sharing/advising function, and higher on the sponsorship component.

What emerges is an altogether unsurprising picture. Liberal arts college faculty are more oriented in their collegial interaction to the campus community, less isolated along department lines, and less oriented to their off-campus, disciplinary colleagues. They are more involved in

collegial interaction centering around the teaching function and less around the research function. They are less involved in keeping abreast of the academic marketplace and in interactions related to professional association politics and institutional policies and procedures (presumably, their institutions are small and intimate enough to require fewer go-betweens in divining what may be going on).

University faculty, on the other hand, are more isolated along department lines on-campus and more oriented to their off-campus, disciplinary colleagues. They are more involved in research rather than teaching-centered interactions. They follow the academic marketplace more closely and relate more to colleagues as informants on their institution and professional associations.

DISCUSSION AND CONCLUSIONS

What, if anything, is significant about these findings? In the first place, they suggest that colleagueship is a complex phenomenon, involving multiple components that are to a high degree specific to colleague location (in the department, on-campus, off-campus). There are general components related to department and campus colleague stimulation and support which together are as important as the general off-campus colleague component. There are components of collegial interaction related to teaching, sponsorship, information sharing and advising, social/personal friendship, that have as preemptive a place in colleague interactions as the research role (and indeed, research-related interaction is itself divided among all three colleague groups). Collegial interactions focused on off-campus colleagues and on research directly account for less than 40 percent of the covariance among the colleagueship functions. To limit ourselves to a consideration of these only is to fundamentally limit our understanding of academic work, the whole

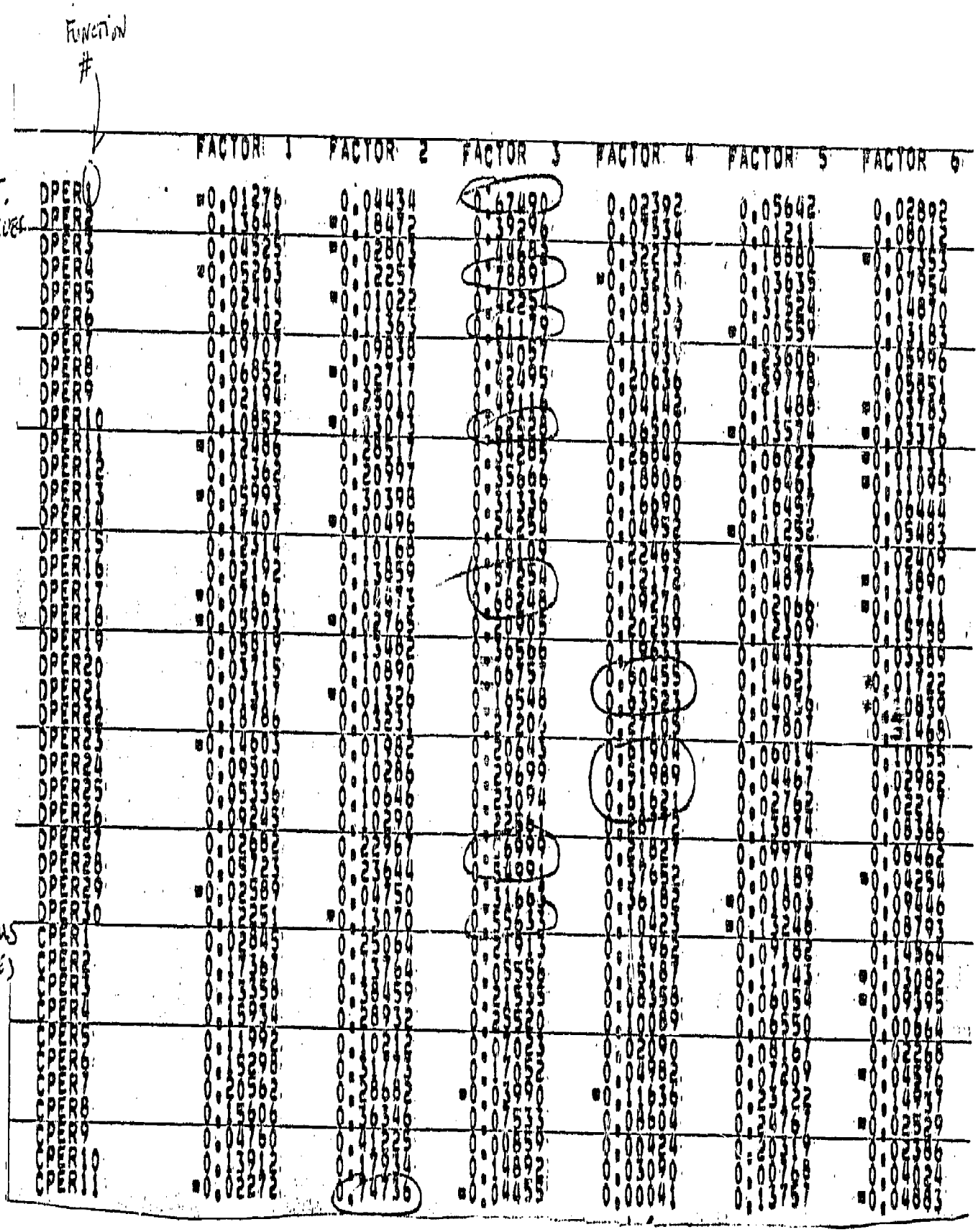
life experience of the professor, and the broader relationship between this life experience with colleagues and faculty performance, productivity, and morale, on the one hand, and the shape of the academic career, on the other.

In the second place, the results of the discriminant analysis suggest that colleagueship takes different forms for college as opposed to university faculty. To this point, we have been limiting ourselves to the world of university faculty--and to the very particular world of university scientists, at that. The institutional life experience of liberal arts college faculty appears, on the basis of these preliminary findings, to be different enough to require that we examine them--and on their own terms. For example, it appears that campus colleagues perform at least some of the same functions for liberal arts college faculty that off-campus and department colleagues perform for university faculty. The nature of this functional equivalence as well as its implications need to be explored more fully.

These findings provide an empirical base for examining the relationship between functional patterns of colleagueship and a variety of indicators of faculty performance and productivity in the teaching, research, and service roles. They also provide the empirical base for an examination of the organizational and structural factors associated with different functional patterns of colleagueship.

TABLE 5

Varimax Rotated Factor Matrix



Function #1

CAMPUS COLLEAGUES

OFF-CAMPUS COLLEAGUES

	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
CPER12	0.03436	0.63280	-0.06253	0.00130	0.14219	0.02294
CPER13	-0.00887	0.62545	0.12144	0.07836	0.12283	-0.02276
CPER14	0.03904	0.57400	-0.08213	-0.10124	-0.01613	0.09174
CPER15	0.18535	0.37410	-0.03747	0.10430	-0.02499	0.13325
CPER16	0.06054	0.61454	0.23708	-0.05160	0.11058	-0.00538
CPER17	0.04953	0.24624	0.30073	0.12465	0.07501	0.15883
CPER18	-0.16322	0.19749	0.21844	0.05599	-0.08764	0.12380
CPER19	-0.04188	0.63848	0.07290	-0.01982	-0.08311	0.08172
CPER20	0.14324	0.39720	0.03993	0.39036	0.09722	0.13694
CPER21	0.10683	0.54827	0.12438	0.11602	0.05541	0.08701
CPER22	0.07276	0.09015	0.05288	0.20421	0.00073	0.55386
CPER23	-0.04980	0.58903	0.03062	0.41559	-0.00920	0.18625
CPER24	0.19068	0.49946	-0.00671	0.10360	0.02837	0.05363
CPER25	0.10097	0.71342	0.02227	0.17212	-0.03853	0.00340
CPER26	0.13368	0.35030	0.04722	0.04938	0.08978	0.00069
CPER27	0.02095	0.39436	0.28593	0.10405	0.04818	0.06940
CPER28	0.05736	0.73274	0.19380	0.02281	-0.04444	-0.00377
CPER29	0.02363	0.69652	0.14322	0.02391	0.11794	0.14819
CPER30	0.14559	0.22638	0.09014	0.02258	-0.07979	0.24278
FPER1	0.60770	0.04008	-0.02713	0.02887	0.02966	0.09006
FPER2	0.55068	-0.16280	0.01533	-0.07109	-0.03944	0.13058
FPER3	0.48437	0.04525	-0.12385	-0.04098	0.09025	-0.08711
FPER4	0.62989	0.01206	0.07116	0.00087	0.14333	0.00604
FPER5	0.57811	-0.10303	0.07307	-0.09258	0.16473	-0.00108
FPER6	0.70252	0.13392	0.07558	-0.00110	0.11761	0.01506
FPER7	0.61772	0.13658	-0.06761	-0.01583	0.21261	0.00272
FPER8	0.66354	-0.07566	0.00518	0.07206	0.14743	-0.01601
FPER9	0.29813	0.11364	0.08878	0.02524	0.64221	0.07309
FPER10	0.72367	0.06834	0.04321	0.00362	-0.02080	0.04380
FPER11	0.17330	0.10813	0.03766	0.07564	0.65520	0.23778
FPER12	0.38505	0.06624	0.02837	0.10449	0.60137	0.14142
FPER13	0.19614	0.12186	0.12859	0.09335	0.57888	0.19855
FPER14	0.30448	0.01134	-0.03304	-0.07263	0.09606	0.15734
FPER15	0.13111	-0.01108	0.02498	-0.02844	0.23890	0.65882
FPER16	0.68742	0.11256	0.13921	0.08794	0.02925	-0.02293
FPER17	0.75094	-0.06326	0.02177	0.02918	0.09144	0.07072
FPER18	0.53057	0.01259	-0.01727	-0.01709	0.14806	0.02123
FPER19	0.41697	0.11482	0.00865	-0.02633	0.15504	0.11898
FPER20	0.24229	-0.01597	0.01899	0.16351	0.26431	0.50747
FPER21	0.16318	0.11678	-0.16070	-0.12622	0.11923	0.31849
FPER22	0.53721	-0.02110	-0.06375	-0.01045	0.02218	0.18136
FPER23	0.38078	0.06910	-0.11804	0.28276	0.20359	0.11094
FPER24	0.34935	0.02636	-0.03896	0.19526	0.14234	0.01081
FPER25	0.02476	0.14256	0.05986	0.00539	0.10387	0.65619
FPER26	0.36765	0.11734	0.17196	-0.10412	0.09514	0.18753
FPER27	0.36559	0.13844	0.09234	-0.06125	0.00810	0.06084
FPER28	0.71217	0.16477	-0.02196	0.11695	0.06721	0.08671
FPER29	0.35446	0.09680	0.15439	-0.00979	0.28058	0.16043
FPER30	0.63165	-0.09698	0.03233	-0.09587	0.05867	0.11369

21

22

Function #	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 10
DPER1	-0.00173	-0.03822	0.00353	0.07441
DPER2	0.02212	-0.04279	0.04337	0.06254
DPER3	-0.04775	0.16467	-0.00646	-0.12085
DPER4	-0.05551	0.10700	0.06537	-0.02055
DPER5	-0.01008	-0.05619	-0.01374	-0.14951
DPER6	-0.02216	-0.04983	-0.11429	-0.19734
DPER7	0.14129	-0.03939	-0.08167	-0.04594
DPER8	0.09525	-0.02689	0.26773	0.09774
DPER9	0.00617	0.27115	-0.04226	-0.03651
DPER10	-0.05829	0.01261	0.17762	-0.04437
DPER11	-0.02182	0.43061	-0.07900	0.02606
DPER12	0.03663	0.51195	0.01776	-0.03568
DPER13	0.11735	0.52407	0.07322	-0.00152
DPER14	0.06829	0.10885	-0.05002	-0.00145
DPER15	0.14192	0.00918	0.10722	-0.01300
DPER16	0.11725	0.13295	-0.04771	0.11677
DPER17	0.07923	0.10060	0.05762	0.07438
DPER18	0.11213	0.13075	-0.00567	0.01663
DPER19	0.05000	0.04902	-0.00835	0.05961
DPER20	0.23890	0.22120	-0.08009	-0.04460
DPER21	0.05893	-0.02032	-0.03700	-0.03284
DPER22	-0.03869	0.02033	0.06571	0.01632
DPER23	-0.02891	-0.02615	0.12252	0.00407
DPER24	0.12527	0.07726	0.00125	0.10750
DPER25	-0.00298	0.04569	0.09135	0.15074
DPER26	0.58636	0.07268	0.09097	0.01354
DPER27	0.16396	-0.03774	0.10881	0.11798
DPER28	0.13524	0.09628	0.00244	0.01160
DPER29	-0.02886	0.13150	-0.04170	0.00646
DPER30	0.15380	0.04454	-0.02490	-0.14512
CPER1	0.12829	-0.00055	0.14328	0.12619
CPER2	0.08032	-0.02649	0.08851	0.05501
CPER3	-0.17330	0.16710	0.13118	-0.10188
CPER4	0.13300	-0.01250	0.23813	-0.04339
CPER5	0.04572	-0.03222	0.07393	0.05852
CPER6	-0.02159	0.05276	0.10150	0.00522
CPER7	0.15053	0.02918	0.03633	0.00239
CPER8	-0.08649	-0.09183	0.18834	0.11225
CPER9	0.02542	0.10642	-0.01236	-0.03056
CPER10	-0.00600	0.01984	0.79887	0.00582
CPER11	0.07044	0.14824	0.00016	-0.02216

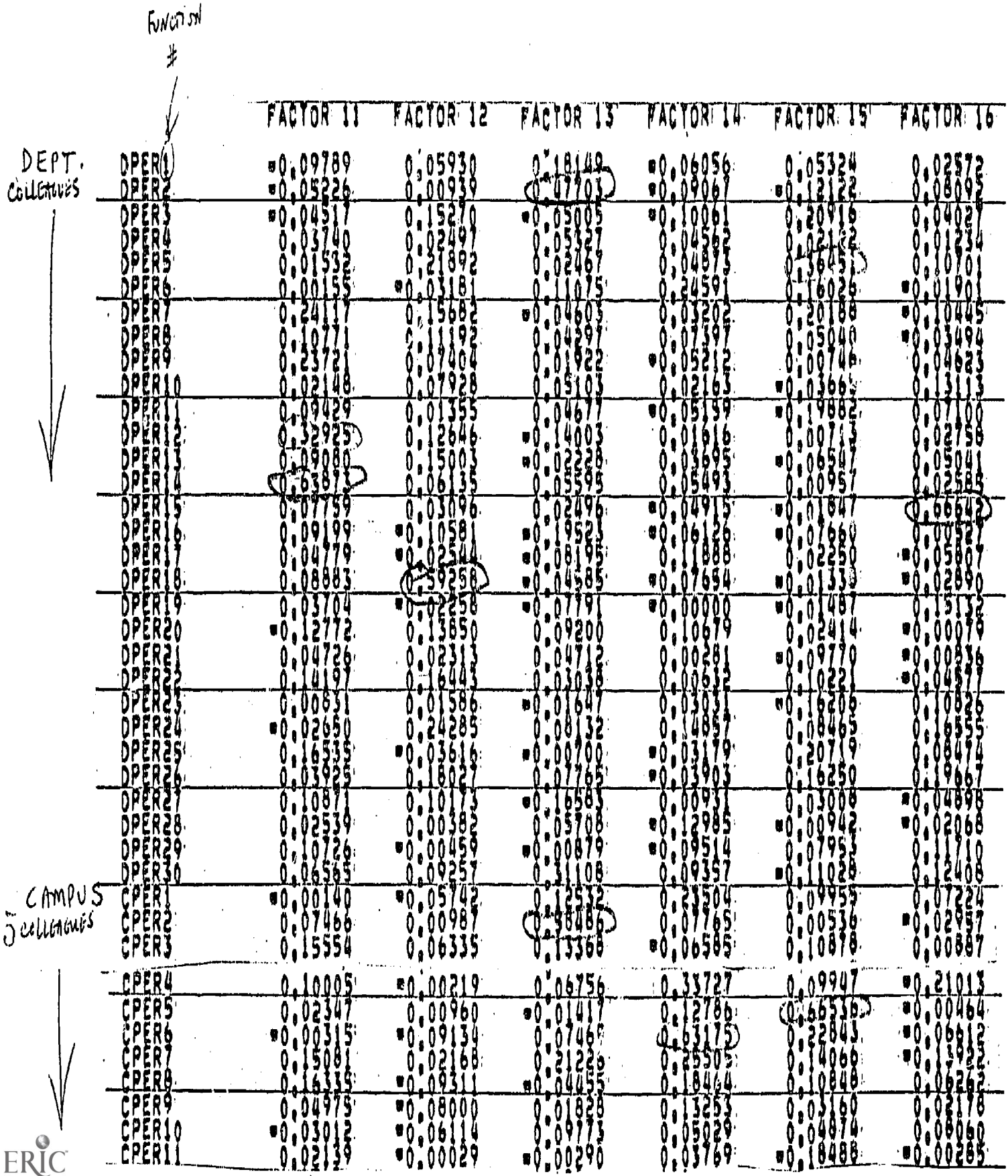
DEPT. COLLEAGUES (DPER1–DPER30); CAMPUS COLLEAGUES (CPER1–CPER11)

Function #

CAMPUS COLLEAGUES: CPER12–CPER30

OFF-CAMPUS COLLEAGUES: FPER1–FPER30

	FACTOR 7	FACTOR 8	FACTOR 9	FACTOR 10
CPER12	0.09493	0.38816	0.07975	-0.09673
CPER13	0.17340	0.44451	0.03278	-0.01075
CPER14	0.16842	0.24021	0.00627	0.01469
CPER15	0.14972	0.08517	-0.01201	0.01306
CPER16	0.03123	0.07388	0.07627	0.14908
CPER17	0.22385	-0.00672	0.23161	0.07487
CPER18	0.28444	-0.03777	-0.14019	0.00269
CPER19	0.02282	0.00677	-0.01952	0.02949
CPER20	0.36423	0.12192	-0.17159	-0.03565
CPER21	0.10598	-0.03742	0.07560	-0.04265
CPER22	0.06052	0.01393	0.09916	-0.06741
CPER23	-0.08427	-0.18239	0.07595	0.02675
CPER24	0.02554	-0.19656	-0.04071	0.07987
CPER25	0.02240	-0.08323	0.07263	0.05814
CPER26	0.64008	0.06995	0.01691	-0.00701
CPER27	0.14509	-0.04709	0.21917	0.19275
CPER28	0.04957	-0.04924	0.21040	0.00957
CPER29	0.04832	0.04485	-0.15720	0.07132
CPER30	0.15453	0.11114	0.41077	-0.10996
FPER1	0.23815	-0.13128	0.03545	-0.01223
FPER2	0.10425	-0.01730	0.00211	0.08487
FPER3	0.04206	0.09568	-0.03139	-0.06009
FPER4	0.03083	-0.08780	0.25855	-0.07478
FPER5	-0.14093	-0.04368	-0.07785	-0.00227
FPER6	0.07974	-0.08389	0.03378	-0.15348
FPER7	0.14243	-0.06158	0.01821	-0.07430
FPER8	-0.15830	-0.08032	0.06478	0.05451
FPER9	0.00969	0.01641	-0.03469	0.14214
FPER10	0.05374	0.08780	0.11989	-0.12894
FPER11	0.06710	-0.06344	0.02529	0.09679
FPER12	0.05559	0.19027	0.09349	-0.02739
FPER13	0.08779	0.20119	-0.05935	0.06223
FPER14	0.05054	0.08522	0.12617	0.13886
FPER15	0.03412	0.01213	0.03246	-0.05060
FPER16	-0.01503	0.02317	-0.01652	0.10546
FPER17	-0.06018	0.02764	-0.03193	0.05045
FPER18	-0.06208	0.14430	-0.19818	0.01735
FPER19	-0.02612	0.06344	-0.00613	0.58645
FPER20	0.14480	0.03962	-0.12342	0.00785
FPER21	-0.06489	-0.04448	0.24933	0.21025
FPER22	-0.03305	0.01319	-0.02073	0.17064
FPER23	0.01642	-0.20789	-0.09172	0.56722
FPER24	-0.04020	0.02200	0.13905	0.36968
FPER25	0.05107	-0.03754	-0.04360	0.17764
FPER26	0.30083	0.09554	0.05220	0.19434
FPER27	0.06369	0.06723	0.02832	0.29450
FPER28	-0.09853	-0.01133	-0.00646	0.28428
FPER29	0.14389	0.02354	0.01169	0.32236
FPER30	0.13632	0.06309	0.07602	0.08337



	FACTOR 11	FACTOR 12	FACTOR 13	FACTOR 14	FACTOR 15	FACTOR 16
DPER1	-0.09789	0.05930	0.18148	-0.06056	0.05324	0.02572
DPER2	-0.05226	0.00939	0.07703	-0.09067	-0.12122	0.08095
DPER3	-0.04517	0.15270	-0.05005	-0.10061	0.20916	0.04027
DPER4	0.03740	0.02497	0.05327	0.04562	0.02112	0.01234
DPER5	0.01532	0.21892	0.02467	0.04873	0.36451	0.10701
DPER6	0.00155	-0.03181	0.11075	0.24591	0.16026	-0.01901
DPER7	0.24117	0.15682	-0.04603	0.03202	0.20188	-0.10445
DPER8	0.10771	0.11192	0.04597	0.07397	0.05040	-0.03494
DPER9	0.23721	0.07404	0.01922	-0.05212	0.00746	0.04623
DPER10	0.02148	0.07928	0.05103	0.02163	-0.03665	0.13113
DPER11	0.09429	0.01355	0.04677	-0.05159	-0.19862	0.07100
DPER12	0.32925	0.12646	-0.14003	0.01916	0.00713	0.02758
DPER13	0.09080	0.15003	-0.02228	0.03695	-0.06547	0.05041
DPER14	0.63873	0.06135	0.05585	0.05493	0.00957	0.02585
DPER15	0.07759	0.03096	0.02496	-0.04915	-0.01847	0.66642
DPER16	0.09199	-0.10581	-0.19523	-0.06126	-0.07660	0.00527
DPER17	0.04779	-0.02544	-0.08196	0.11888	0.02250	-0.05807
DPER18	0.08883	0.59258	-0.04585	-0.07654	-0.01333	-0.02890
DPER19	0.03704	-0.02258	-0.07791	-0.00000	-0.01487	0.15132
DPER20	-0.12772	0.13850	0.09200	0.10679	0.02414	-0.00076
DPER21	0.04726	0.02313	0.04712	0.00281	-0.09779	-0.00536
DPER22	0.14197	0.16443	0.03038	0.00632	0.01221	-0.04577
DPER23	0.00631	0.01586	-0.01647	0.03031	-0.16206	0.10826
DPER24	-0.02650	0.24285	0.08132	0.14857	0.18463	0.19555
DPER25	0.16535	-0.03616	-0.07700	-0.03179	0.20719	0.08474
DPER26	0.03925	0.18027	0.07765	-0.03903	0.16250	0.19067
DPER27	0.10871	0.10173	-0.16583	0.00931	0.03008	-0.04898
DPER28	0.02539	0.00382	0.05708	-0.12985	-0.00942	-0.02068
DPER29	0.10726	-0.00459	-0.00879	-0.09514	0.07953	0.11710
DPER30	0.06565	0.09257	0.31108	0.09357	-0.11028	0.12408
CPER1	-0.00140	-0.05742	0.12532	0.23504	0.09955	0.07224
CPER2	0.07466	0.00987	0.58486	0.07765	0.00536	-0.02957
CPER3	0.15554	0.06335	0.13368	-0.06585	0.10878	0.00887
CPER4	0.10005	-0.00219	0.06756	0.33727	0.09947	-0.21013
CPER5	0.02347	0.00960	-0.01417	0.12786	0.66536	-0.00464
CPER6	-0.00315	-0.09134	0.07466	0.63175	0.22843	-0.06813
CPER7	0.15081	0.02168	0.21226	0.25505	0.14068	-0.13922
CPER8	0.16335	-0.09311	-0.04455	0.18464	0.10848	0.06263
CPER9	0.04975	-0.08000	0.01828	0.13253	0.03169	0.02178
CPER10	-0.03012	-0.06114	0.09773	0.05029	0.04874	0.08060
CPER11	0.02139	-0.00029	-0.00290	0.03769	-0.18488	-0.00285

FUNCTION #

		FACTOR 11	FACTOR 12	FACTOR 13	FACTOR 14	FACTOR 15	FACTOR 16
CAMPUS COLLEAGUES	CPER12	0.05184	-0.10428	0.02804	0.04181	0.04819	-0.01849
	CPER13	-0.03928	0.02067	0.04796	0.05394	0.03338	0.02436
	CPER14	0.20392	-0.05371	0.02495	0.00775	0.22048	-0.02577
	CPER15	-0.12344	-0.03449	-0.03850	-0.01520	0.03406	0.54046
	CPER16	-0.11181	-0.06989	-0.04182	0.07084	-0.05165	-0.03836
	CPER17	0.00903	-0.06533	-0.05359	0.20992	0.13808	0.02134
	CPER18	0.08950	0.44622	0.10914	-0.03763	0.13990	0.06965
	CPER19	-0.05991	0.02384	0.01373	0.04036	-0.01493	0.09215
	CPER20	-0.19215	0.07669	-0.06893	0.08187	0.04561	0.13507
	CPER21	-0.14166	0.06812	0.03293	0.06271	-0.03794	0.05687
	CPER22	0.20018	0.10221	-0.09052	-0.04675	0.07581	-0.07991
	CPER23	-0.22801	0.12410	-0.02294	0.07536	-0.04721	0.01625
	CPER24	-0.01729	0.39302	0.01805	0.13093	0.01015	0.00016
	CPER25	0.17896	0.03502	0.07740	-0.05189	0.13240	0.19425
	CPER26	0.10609	0.06194	0.11675	0.00527	-0.03727	0.09685
	CPER27	0.07697	-0.08013	-0.05786	0.08159	0.03381	0.10978
	CPER28	-0.01477	0.10843	0.02083	0.00768	-0.02258	-0.01087
	CPER29	-0.01432	-0.01857	0.00354	0.04959	0.18990	0.04075
	CPER30	-0.07466	-0.00532	0.40194	0.12114	0.17101	0.01940
OFF-CAMPUS COLLEAGUES	FPER1	-0.00865	0.05613	-0.02977	-0.08592	0.00895	0.01886
	FPER2	0.05306	0.08406	0.18197	-0.04685	0.01866	0.01891
	FPER3	0.06632	-0.01787	0.04006	0.07251	-0.04707	0.01951
	FPER4	0.11828	-0.04162	0.04876	0.05268	-0.09665	-0.14538
	FPER5	0.19495	0.04385	0.18432	0.14902	0.17193	0.24378
	FPER6	-0.07262	-0.00814	-0.06682	0.07973	0.10658	0.10301
	FPER7	0.20492	-0.05430	0.00973	0.42162	0.18511	-0.04488
	FPER8	0.15962	-0.02767	0.06986	0.36949	0.05231	0.07984
	FPER9	0.07956	0.03697	-0.00354	0.12289	0.08521	0.11922
	FPER10	-0.01601	-0.04830	-0.12133	0.04368	-0.11197	0.06211
	FPER11	0.08905	-0.06905	0.03735	0.03077	-0.06672	-0.01473
	FPER12	-0.09946	0.17817	-0.01179	-0.01889	0.13002	-0.13220
	FPER13	-0.11481	0.04013	0.12552	-0.04447	0.08534	0.06116
	FPER14	0.34444	0.24071	0.01116	-0.09312	0.04706	-0.03768
	FPER15	0.06093	0.05931	0.10213	0.00145	-0.02868	0.06218
	FPER16	-0.03593	-0.05329	-0.02848	-0.02988	-0.03666	-0.03017
	FPER17	-0.01954	-0.01618	-0.01696	-0.05005	0.01425	0.10907
	FPER18	0.05202	0.39058	0.23110	-0.05107	-0.04915	0.11752
	FPER19	0.09305	0.07646	-0.04421	0.06674	0.12491	0.01251
	FPER20	-0.06444	0.06034	-0.14574	0.23829	-0.08212	0.09963
	FPER21	0.00725	0.16703	-0.15358	-0.14723	0.05112	0.07128
	FPER22	0.20925	-0.09353	0.13155	0.06146	-0.05153	0.05731
	FPER23	-0.06840	-0.07350	0.13045	-0.09963	0.03538	-0.01948
	FPER24	-0.10543	0.15343	0.04867	0.06499	-0.02951	0.09525
	FPER25	-0.08240	-0.01641	0.10285	0.01289	0.04773	0.02660
	FPER26	0.11832	0.06833	0.15561	0.22019	-0.02679	0.21578
	FPER27	-0.02969	-0.05373	0.15931	0.03051	0.03034	-0.04593
	FPER28	0.06089	-0.03947	0.03258	-0.01629	0.00407	0.01084
	FPER29	0.07751	0.09971	0.08075	0.06205	0.07190	-0.07081
	FPER30	-0.06218	0.05069	0.14554	0.04191	0.17758	-0.03171

TABLE 6

Summary Table of Stepwise
Discriminant Analysis

Step	Variable	RAO' V	Change in V	Significance
1	Factor 2	77.70	77.70	.00
2	Factor 8	99.18	21.48	.00
3	Factor 12	117.2	17.97	.00
4	Factor 1	136.0	18.82	.00
5	Factor 13	145.9	9.927	.00
6	Factor 7	155.0	9.122	.00
7	Factor 3	163.0	7.958	.00
8	Factor 6	169.1	6.074	.01

TABLE 7

Standardized Discriminant Function
Coefficients

Factor	Discriminant Function	
1	- 0.37282	
2	0.94199	Canonical Correlation = 0.73
3	- 0.22366	
6	- 0.19274	
7	0.24576	
8	0.45908	
12	- 0.40217	
13	- 0.26509	

TABLE 8

Subgroup Factor Score Means
and
Standard Deviations

Factor	Univ. Sample		Lib. Arts Sample	
	Mean	STD.	Mean	STD.
1	0.15	0.92	- 0.25	1.02
2	- 0.49	0.88	0.66	0.63
3	0.07	0.99	- 0.13	0.98
4	- 0.04	0.99	0.03	0.88
5	0.04	0.88	- 0.07	0.96
6	0.07	0.99	- 0.08	0.76
7	- 0.10	0.80	0.15	0.99
8	- 0.18	0.87	0.29	0.92
9	0.03	0.94	- 0.01	0.99
10	0.03	0.89	- 0.05	0.96
11	0.05	0.98	- 0.10	0.81
12	0.14	0.90	- 0.21	0.82
13	0.09	0.87	- 0.15	0.81
14	0.01	0.87	0.00	0.94
15	- 0.01	0.90	0.06	0.85
16	- 0.04	0.85	0.07	0.92

APPENDIX I

List of Thirty Colleagueship Functions

1. Critical feedback on professional writing.
2. Co-author for professional publications.
3. Help in identifying sources of research support.
4. Help in generating and/or testing ideas for research.
5. Nomination for professional association panels/committees/offices.
6. Providing references to the literature and/or links to other scholars directly related to your research.
7. Providing access to publication media for professional writing.
8. Nomination for consulting and/or speaking assignments.
9. Providing ideas for reading and written assignments in your courses.
10. Consultation on specific problems encountered in research.
11. Consultation on specific problems encountered in the classroom.
12. Help/advice/models in developing new courses.
13. Advice on the use of teaching techniques.
14. Co-teacher for a course/workshop.
15. Nomination for campus or college/department committee assignments.
16. General intellectual stimulation.
17. Providing information on new developments or perspectives in your field.
18. Providing information on current (imminent) job opportunities.
19. Companionship in social and/or recreational activities.
20. "Troubleshooting" on one's behalf with administrators or colleagues.
21. Informant on department or institutional "politics".
22. Informant on professional association "politics".
23. A listening ear for personal problems.
24. Advice and support in negotiating career hurdles .

Appendix I (continued)

25. Providing information on institutional policies and procedures.

26. Nomination/sponsorship for academic positions.

27. Introduction to eminent scholars in your field.

28. General support and encouragement.

29. Discussion of curriculum or educational policy issues.

30. Collaboration in the conduct of research.

FOOTNOTES

1. Conventional factor analysis models assume that both the underlying factors and the observed variables determined by these factors are continuous. In applying factor analysis to dichotomous variables, one must therefore concede the inconsistency between the factor model and the data.

Investigators have sought to resolve this inconsistency by conceiving of the observed dichotomous variables as the result of dichotomizing potentially continuous underlying variables and further assuming that these underlying variables are normally distributed. Both these assumptions appear tenable in the present study. Some controversy has, however, developed over the most appropriate measure of association to be employed in the factoring process: The phi coefficient, a variously adjusted phi coefficient or the tetrachoric coefficient. The main problem in using phi is its distortion at the extremes, i.e. when the underlying correlation is either very low or very high. In the present study, the correlations among variables tended to be in the middle range (.20 - .60). In such cases, there tends to be high similarity in the correlation patterns between phi and the tetrachoric coefficient, although the absolute values of phi tend to be lower (Kim, Nie and Verba, 1977). This together with the greater practical ease of computing phi led to its use in this study.

2. A principal component analysis was also undertaken, but, owing to problems with the computer program, no eigenvalues were being printed for the extracted components. There was, however, nearly complete convergence between the principal component and iterative factoring solutions: Thirteen of the first sixteen factors were identical, although their order varied slightly.

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